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THE EFFECT OF COEDUCATIONAL AND SAME-SEX
COOPERATIVE LEARNING GROUPS
ON ACHIEVEMENT

by
Michelle L. Rodier

A Thesis

Submitted in partial fulfillment of the requirements of the
Masters of Science in Teaching Degree in the
Graduate Division of Rowan University
July 3, 1997

Approved by
Professor

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July 3, 1997

ABSTRACT

Michelle L. Rodier
The Effect of Coeducational and Same-Sex Cooperative
Learning Groups on Achievement
1997

Dr. Randall R. Robinson, thesis advisor
Masters of Science in Teaching

The purpose of this study was to explore the effects of coeducational and same-sex cooperative learning groups on the achievement of first grade students. It is hypothesized that the academic performance of students in all subject areas while participating in a "same-sex cooperative learning group" will exceed their performance in the "coeducational learning group." The subjects of this study were twenty-two first grade students from a southern New Jersey community. This study was divided into two experimental cycles - cycle A and cycle B. Cycle A included three weeks of coeducational cooperative learning groups and cycle B included three weeks of same-sex learning groups. After the two experimental cycles of this study were complete, the academic performance of males and females in the same-sex and coeducational cooperative learning groups was assessed. A t-test for non-independent samples was utilized which determines whether there was a significant difference between the means for the achievement of the males and females in the "coeducational learning group" and in the "same-sex learning group." The t-test for nonindependent samples indicated a significance between the coeducational and same sex learning groups.

MINI-ABSTRACT

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The purpose of this study was to explore the effects of coeducational and same-sex cooperative learning groups on the achievement of first grade students. The results of the study support the hypothesis that the students academic performance while participating in the same-sex cooperative learning group will exceed their academic performance in the coeducational learning group.

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Chapter One
Scope of Study
Introduction

Cooperative learning is the method of instruction in which students are expected to carry out an assigned task cooperatively in a group of other students without the direct and immediate supervision of the teacher. From a study conducted by Johnson and colleagues, it has been concluded that cooperative learning groups promote higher achievement than do individualistic learning situations (Johnson, et al 1981). Another study conducted by Noreen Webb concluded that while cooperative learning is a positive method of instruction, coeducational cooperative learning groups tend to allow males to dominate the activity and females are often ignored (Webb, 1984). There is a lack of research in the area of the effects of same sex cooperative learning on achievement (McCloskey, Coleman, 1992).

Significance of Study

The purpose of the study is to explore the effects of coeducational and same-sex cooperative learning groups on the achievement of first grade students. The exploration of gender upon cooperative learning groups is crucial to children's achievement when working cooperatively (Slavin, 1990). The purpose of cooperative learning is teamwork. If a child is not thriving in a cooperative atmosphere, an educator must explore the reasons why (Slavin, 1990). A possible reason is the issue of gender. As the research states, many females are virtually ignored within coeducational groups (Webb, 1984). The conclusion of

this study should formulate the necessity of forming same-sex cooperative learning groups within the cooperative learning classroom in order for all children to achieve (Webb, 1984).

Statement of Problem

Do children performing in "a same-sex cooperative learning group" achieve more than when performing in "a coeducational cooperative learning group"?

Hypothesis

It was hypothesized that the students academic performance while participating in the "same-sex cooperative learning group" will exceed their academic performance in the "coeducational learning group".

Limitations of Study

There are limitations which may have affected the results of the study:

1. The subjects should have been exposed to a treatment for a longer period of time; therefore, the restricted amount of time was a limitation.
2. The use of two or more groups of students to account for the various learning styles within the classroom would have been preferable.
3. The sample for this study was not selected by the researcher, so the use of an intact classroom as a population sample was a limitation.

These limitations may restrict the generalizability of the results.

Definition of Terms

The terminology used in this study are operationally defined :

Coeducational - educating males and females in the same classes or groups.

Cooperative Learning - a method of instruction in which students are expected to carry out an assigned task cooperatively in a group of other students without the direct and immediate supervision of the teacher (Grisham, 1995). Also known as group work or collaborative learning.

Achievement - to accomplish or attain the stated goal through an above satisfactory effort, a 72 % or greater.

Chapter Two

Review of Related Literature

Introduction

The method of instruction in which students are expected to carry out an assigned task cooperatively in a group of other students without the direct and immediate supervision of the teacher is cooperative learning. Johnson and colleagues concluded that cooperative learning groups promote higher achievement than do individualistic learning situations (Johnson, et al 1981). Noreen Webb concluded that while cooperative learning is a positive method of instruction, coeducational cooperative learning groups tend to allow males to dominate the activity and females are often ignored (Webb, 1984). It is hypothesized that the students academic performance while participating in a "same-sex cooperative learning group" will exceed their overall performance in the "coeducational learning group." There is a lack of research in the area of the effects of same-sex cooperative learning on achievement; however, there is an enormous amount of research on cooperative learning (Webb, 1984).

The History of Cooperative Learning

The primary goal of education is to provide students with the knowledge, concepts, skills, and understanding needed for survival in society (Slavin, 1990). One method of educating, cooperative learning, has been shown to accelerate this crucial learning process in grades 2-9 (Slavin, 1990). In fact, 72% of the studies done have concluded that

cooperative learning has a positive effect on achievement (Slavin, 1990). Cooperative learning, although not a new instructional method, has been rapidly introduced into the nations schools since the mid-1960's. From that time, cooperative learning has been widely investigated by many researchers with diverse questions about its implementation and efficacy (Grisham, 1995). Such educational researchers as Spencer Kagan, Robert Slavin and D.W. Johnson have concluded that cooperative learning groups promote higher achievement than do individualistic learning situations (Johnson, et al 1981).

Components of Effective Cooperative Learning

In order for cooperative learning groups to increase students achievement, a few criteria and conditions must be met. According to Johnson and Johnson (1990), positive interdependence and individual accountability must be stressed and accounted. While working as a team, each child must be able held accountable for his/her work, in order to prevent the "free-rider" scenario (Johnson and Johnson, 1990). All students must be equal members of the group. To reach multiple group goals the students must get to know and trust one another, communicate effectively, accept one another, and resolve conflicts constructively (Grisham, 1995). Therefore, it is imperative to establish a positive learning environment, between individuals and the group, so cooperative learning groups can flourish (Slavin, 1990).

According to Pratt (1994), bringing about cooperative structures in the classroom involves more than simply asking the learners to work in groups. Schools tend to socialize their students into individualized and competitive patterns, and they need to be taught skills of cooperation (Pratt, 1994). Group skills need to be developed. If not, more conscientious learners may begin to view less motivated learners as parasitic. As compared with students taught in individual or competitive structures, students of all ability levels who learn cooperatively tend to like each other, the teacher, and the subject, demonstrate more time on-

task, engage in less disruptive behavior, develop higher levels of self-esteem and achieve at a higher level (Pratt, 1994).

The Piagetian Perspective to Cooperative Learning

According to Jean Piaget (Damon, 1984), peer interaction increases development by posing critical cognitive conflicts (Grisham, 1995). Piaget's theory explores the impact of social interaction on cognitive and moral development (Tudge, 1986). During the preoperational stage of development, opportunities for becoming less egocentric are more common with children who possess less in common with each other (Tudge, 1986). While working with other children, various occasions will arise where a child is faced with disparity (Grisham, 1995). This disparity leads a child to think critically, experiment and forge new ideals. These interactions are also socially beneficial to children (Grisham, 1995).

By working so closely together, children are forced to communicate and observe other students emotions and behaviors (Grisham, 1995). Therefore, while working in cooperative learning groups, children are gaining cognitively and emotionally. Several researchers have found that children who were paired with a more advanced child were later able to solve conservation tasks at a higher level, while children who worked individually did not improve (Tudge, 1986).

Vygotskys Position of Cooperative Learning

Vygotsky (1978) believed that all learning was social in nature. A learner is guided through a learning experience by someone who is more knowledgeable in the area, such as a teacher and a student. Eventually, the learner gains enough skill and experience to take over the instruction himself. From that point the teacher or expert merely serves as a guide.

This serves as a model for cooperative learning in the classroom. In these peer collaborations, individuals help each other construct meaning by internalizing others thought processes through interaction and communication (Grisham, 1995). This Vygotskian process is effective in an environment where social interaction, negotiation, and sharing can take place as opposed to a teacher-centered atmosphere. (Grisham, 1995).

More Cooperative Learning Theories

Robert E. Slavin (1990) states that there are two theories which support the cooperative learning method of instruction. The motivational theory supports reward or goal structures of cooperative learning. This method of learning reinforces the students personal goals, and personal achievement (Slavin, 1990). In other words, the children must work together to achieve the groups goal, but while doing this also reinforces the student's own personal motivation to achieve goals (Slavin, 1990).

The cognitive aspect of cooperative learning emphasizes the effects of working together collectively. Johnson, et al (1990) states that students should be heterogeneously grouped according to ethnicity, gender and ability. Therefore, the students of basically the same developmental level are able to model each other's behavior and acquire different roles which are only present in cooperative learning groups (Johnson, 1990).

Cooperative Learning and Self-Perception

Although there is evidence that cooperative learning groups are extremely effective in increasing the achievement of a student, there is also evidence that cooperative learning groups also have an effect on the self-perception of the student. Catherine Conwell (1988) completed a study with a classroom size of 28 in intermediate science classroom. The study explored the students perceptions of achievement, personal worth, friendship formation

with different ethnic groups and sexes, and enjoyment of school. Interviews and videotapes were used. Conwell found that the students perceived their achievement positively, two-thirds of the students rated their self-esteem as high, most of the students felt positive about themselves when working in groups, and more than two-thirds of the students enjoyed school more when working in groups. While Conwells study reports that the intergroup relations between males and females were positive, the study does not state how these intergroup relations effected actual individual achievement (Conwell, 1988).

A Contrast Between Males and Females

Researchers have found that in mixed-sex adult interactions males are reported to be more domineering, interrupt more, and occupy more conversational space (McCloskey, Coleman, 1992). Women tend to ask more questions and act as the conversational facilitator (McCloskey, Coleman, 1992). These differences are not only apparent in adult interactions but they begin much earlier. Gender segregation is characteristic of the social lives of children, appearing as early as the pre-school years and increase with age during middle childhood (McCloskey, Coleman, 1992). A study reported that kindergarten boys interrupted girls more often than each other (McCloskey, Coleman, 1992). Also in kindergarten cooperative play, boys made more assertive bids than girls (McCloskey, Coleman, 1992). Therefore, gender-differentiation is observable and documentable at an early age (McCloskey, Coleman, 1992).

A study by Laura M. McCloskey and Lerita M. Coleman (1992) concluded that there is a significant difference between third grade males and females in mixed and same-sex dyads. The structural differences give rise to different forms of interaction with girls more focused on maintaining equity and resolving conflict, and boys are more oriented toward establishing a position of dominance (Maltz and Borker, 1982). The study also concluded that boys tend to be more talkative than girls in same-sex pairs. Therefore,

masculine interaction in mixed-sex groups may be aversive to females in interaction and communication skills (Maccoby, 1990).

The Effect of Gender on Achievement

Gender differences are apparent within the classroom. These changes can be observed through social interactions and teacher interactions with the children. Much debate has focused on the question whether differences are due to biological or environmental factors (Pratt, 1994). A study involving over three million students show that differences between the achievement of boys and girls in mathematics are small and have decreased over the past three decades (Pratt, 1994). One of the pressures noted was attitude of teachers which is shown to influence the attitudes and self-concepts of students (Pratt, 1994). Newman and Goldin (1990) found that girls were more reluctant than boys to seek help for problems in learning mathematics. Lee and Marks (1990) research concludes that some female students appear to achieve better in same sex environments.

The sex differences in interaction and achievement in cooperative small groups were studied by Noreen Webb (1984). The groups were divided homogeneously according to ability and heterogeneously according to gender. The research has shown that males consistently dominate the activity in mixed-sex groups (Webb, 1984). The study by Webb concentrated on the verbalization of the groups using a tape recorder. The categories of verbalization and achievement were as follows: asks for explanation, asks procedural questions, gives explanation, and gives procedural information. Webb concluded that males and females achieved equally on the assignment, but the males tended to receive more explanations and help from the group, whereas the female requests went unanswered. Interestingly, in groups with three females and one male, the females tended to direct their requests for help to the male in the group rather than the other females (Webb, 1984).

Therefore, the presence of males in coeducational learning groups may be unfavorable to the achievement of females (Webb, 1984).

Summary

The effects of coeducational cooperative learning groups on achievement has been studied and documented since the 1970's (Pratt, 1994). Educational and psychological theorists, such as Slavin, Piaget and Vygotsky, have generated theories and models which support cooperative learning as an instructional method. It has been concluded that cooperative learning groups promote higher achievement than do individualistic learning situations (Johnson, et al 1981). There are endless benefits to peer collaboration. The students learn to achieve a goal, communicate, and forge new thought processes while their self-perception positively increases (Slavin, 1990). Cooperative learning is undoubtedly a beneficial tool within the classroom (Slavin, 1990).

There is one area of cooperative learning where the research is not as certain (Webb, 1984). Research and studies have shown that males in coeducational cooperative learning groups tend to dominate the activity and leave the females ignored (Webb, 1984). The females are given much less time to communicate with the group, explanations and therefore, the opportunity to achieve (Webb, 1984). Unfortunately, there is a lack of research in the area of same sex cooperative learning groups as opposed to coeducational learning groups (Webb, 1984).

Chapter Three

Procedure and Design of Study

Introduction

The purpose of this study was to explore the effects of coeducational and "same-sex cooperative learning groups" on the achievement of first grade students. It is hypothesized that the academic performance of students in all subject areas while participating in a "same-sex cooperative learning group" will exceed their performance in the coeducational learning group. As the literature states, cooperative learning groups are effective within the classroom (Slavin, 1990). The effects of coeducational versus same-sex learning groups on achievement needs to be assessed (Webb, 1984). To evaluate the effects in the cooperative learning groups, various steps must be taken.

Population and Sample

The population of the study was the group of individuals to whom the findings of the study were generalizable. In this study the population was first grade students ranging in age from six to eight years old. The sample for this study was taken from a large township in southern New Jersey. According to the township data, the inhabitants are primarily middle income with an approximate equal number of blue and white collar households. The municipality is a mixture of many ethnic groups.

The individuals used in the study or the subjects were selected from one of the eight elementary schools within the township. An intact classroom of first grade students from an elementary school was designated as the subject group. The ages of the students ranged from six to eight years of age. Eighteen of the students were seven years of age, two students were six years old and two students were eight years of age. Out of the twenty-two children, thirteen were females and nine males. Twenty-one of the students were Caucasian and one of the subjects was African American.

Research and Design Procedure

The entire study was carried out over a six week period. To allow the subjects equal time in each cooperative learning group, the study was divided into two experimental cycles - cycle A and cycle B. Cycle A included three weeks of coeducational cooperative learning groups and cycle B included three weeks of same-sex learning groups.

The Student Team Achievement Division developed by Robert E. Slavin was implemented (see appendix). The STAD procedure of cooperative learning incorporates group learning and individual testing (Slavin, 1990). Each experimental cycle consisted of three weeks of class presentations, quizzes and positive reinforcement within mathematics. After a lesson with teacher instruction, the students, as a group, completed activities, worksheets, or a project. The groups were then given the answers to the worksheets and the materials to be learned for the test. The children were made aware and reminded that their group work was not complete until each member of their group was able to comprehend the material given. Each child took the test independently.

At the conclusion of group studying a teacher prepared test or quiz was administered to each student to assess academic achievement. The test measured only the material on which cooperative groups worked as a group.

At the end of each cooperative learning session the groups analyzed their work period. The following questions were used by the group to analyze their tasks : Did the groups accomplish their task ? Did each student work their hardest to accomplish the goal ? To assess the effectiveness of the group a method termed "dipsticking" was implemented (Grisham, 1995). "Dipsticking" provides that the teacher ask a question to the group and the students gave either a thumbs up or thumbs down. The leader of each group then explains the response to the teacher. This "dipsticking" method of evaluation helped the teacher determine the amount of learning and cooperation.

To determine the composition of the cooperative learning groups, the children's past performance on tests and quizzes was charted. The average grades of the children were calculated and listed. Based on the charted scores the children were ranked according to achievement from highest to lowest. Once the students were ranked, the total number of students were divided by four with four being the optimal number of children for a cooperative learning group. It was determined that there would be five cooperative learning groups within the classroom. There were three groups of four and two groups of five students.

When assigning the children to the coeducational learning groups, race, gender and achievement were accounted. In each group there were high, average and low achievers. The students were ranked according to class averages, gender and race. When forming the group, a high achiever were chosen, a low achiever, and two average achievers. Therefore, males and females of different achievement levels were placed together. The heterogeneous achievement levels and racial balance was also accounted for in the "same-sex cooperative learning groups."

Once the children were placed into their groups, each member of the group was given a job assignment. The student with the highest class average also known as the highest achiever of the group was designated the leader. This student was to keep all students on task and to keep in close communication with the teacher. The middle achievers

were assigned jobs as the reader and the recorder. The lowest achiever was designated the encourager. The responsibility of the encourager was to give their group members praise and to encourage all members of the group while they were working. To keep all children aware of their responsibility within the group, a small reminder card was placed on the desk of the child.

Once the groups were formed, cooperative learning group rules were established. The students brainstormed and discussed the rules with the teacher. The rules were taken from Grisham and were as follows: Stay with your group, Use indoor voices, Help each other, Share your thoughts, Finish the work, and Work things out. The final list of rules was posted on the cooperative learning bulletin board to serve as a reminder to the students.

To reinforce the rules and to keep all children on task, an incentive program was introduced. A chart was placed on the cooperative learning bulletin board with the name of each student. Each day the students received a star next to their name if the rules were followed. If the student earned a star each day for the entire week, the student earned a reward of a piece of candy. This system not only served as incentive but also as an effective classroom management strategy.

After the two experimental cycles were complete, the academic performance of males and females in the same-sex and coeducational cooperative learning groups was assessed. For each cycle, the grades on the tests and quizzes were averaged together and charted for statistical analysis (see table 1). The averages for the "coeducational cooperative learning group" were lower than the "same-sex cooperative learning group" for both males and females.

table 1
Student Averages for Coeducational and Same-Sex Cooperative Learning Groups

	<u>Coeducational</u>	<u>Same-Sex</u>
Female	95	100
Female	91	99
Female	77	94
Female	69	92
Female	98	99
Female	88	98
Female	86	100
Female	89	96
Female	88	98
Female	98	100
Female	91	95
Female	74	76
Female	76	92
Male	91	94
Male	96	98
Male	78	91
Male	80	88
Male	73	86
Male	98	98
Male	68	90
Male	82	96
Male	82	92

Since the sample is one group receiving two different treatments, a t-test for non-independent samples was utilized. The t-test for non-independent samples determined whether there was a significant difference between the means for the achievement of the males and females in the "coeducational learning group" and in the "same-sex learning group."

Chapter Four

Analysis of Findings

Introduction

The purpose of this study was to explore the effects of coeducational and same-sex cooperative learning groups on the achievement of first grade students. It is hypothesized that the academic performance of students in all subject areas while participating in a "same-sex cooperative learning group" will exceed their performance in the "coeducational learning group." As the literature states, cooperative learning groups are effective within the classroom (Slavin, 1990). The effects of coeducational versus same sex learning groups on achievement needs to be assessed (Webb, 1984).

The subjects of this study were twenty-two first grade students from a southern New Jersey community. This study was divided into two experimental cycles - cycle A and cycle B. Cycle A included three weeks of coeducational cooperative learning groups and cycle B included three weeks of same-sex learning groups. After the two experimental cycles of this study were complete, the academic performance of males and females in the same-sex and coeducational cooperative learning groups was assessed.

Statistical Analysis Related to Hypothesis

After the completion of the two experimental cycles the grades on the tests and quizzes were averaged together for each student and charted for statistical analysis (see table

1). Since the sample is one group receiving two different treatments, a t-test for non-independent samples was utilized. The t-test for non-independent samples determined whether there was a significant difference between the means for the achievement of the males and females in the coeducational learning group and in the same-sex learning group. The t-test for non-independent samples indicated there was a significant difference between the coeducational and same-sex learning groups, $t = 6.20$ $p < .05$.

The total mean scores for the males and females in the same-sex and coeducational learning groups were also calculated and charted (see table 2).

table 2

Means for the Coeducational and Same-Sex Cooperative Learning Group

	<u>Males</u>	<u>Females</u>
Coeducational Learning Group	83 %	86%
Same-Sex Learning Group	93%	95%

As table 2 indicates, both male and female subjects scored higher in the same-sex cooperative learning group. For the males, the "coeducational learning group" mean was 83% and 93% for the "same-sex cooperative learning group". For the females, the mean for the "coeducational cooperative learning group" was 86% and 95% for the "same-sex cooperative learning group." Therefore, the hypothesis that the students academic performance while participating in the same-sex cooperative learning group will exceed their academic performance in the coeducational learning group was supported.

Chapter Five
Summary, Conclusions and Recommendations
Introduction

The purpose of this study was to explore the effects of coeducational and same-sex cooperative learning groups on the achievement of first grade students. It is hypothesized that the academic performance of students in all subject areas while participating in a "same-sex cooperative learning group" will exceed their performance in the "coeducational learning group." Cooperative learning groups are effective within the classroom (Slavin, 1990) and the effects of coeducational versus same sex learning groups on achievement needs to be assessed (Webb, 1984).

The subjects of this study were first grade students from a community within southern New Jersey. This study was divided into two experimental cycles - cycle A and cycle B. Cycle A included three weeks of coeducational cooperative learning groups and cycle B included three weeks of same-sex learning groups. After the two experimental cycles of this study were complete, the academic performance of males and females in the same-sex and coeducational cooperative learning groups was assessed. The t-test for nonindependent samples indicated a significance between the coeducational and same sex learning groups.

Summary of the Problem

The purpose of cooperative learning is teamwork; therefore, all children must work together to be successful. Research has shown that not all children will thrive academically as well as socially in a cooperative learning atmosphere. It is the educators responsibility to explore the reasons why the students are experiencing difficulty within this environment (Slavin, 1990). One of the possible issues to explore is gender. Various researchers have concluded that females are virtually ignored within coeducational groups (Webb, 1984). Therefore, the formation of same-sex cooperative learning groups within the cooperative learning classroom is imperative in order for all children to achieve.

Summary of the Hypothesis

As the research concluded, females are often ignored within a cooperative learning environment while males are the dominant figures verbally and physically in the "coeducational cooperative learning groups" (Webb, 1984). Therefore, it was hypothesized that the students academic performance while participating in the "same-sex cooperative learning group" will exceed their academic performance in the "coeducational learning group."

Summary of the Procedure

The entire study was carried out over a six week period and was divided into two experimental cycles - cycle A and cycle B. Cycle A included three weeks of "coeducational cooperative learning groups" and cycle B included three weeks of "same-sex learning groups."

The Student Team Achievement Division was implemented which incorporates group learning and individual testing (Slavin, 1990). After a lesson with teacher instruction, the students, as a group, completed activities, worksheets, or a project. The groups were then given the answers to the worksheets and the materials to be learned for the test. The groups studied as a cooperative group; however, each child took the test independently.

At the end of each cooperative learning exercise the groups analyzed their work period by "dipsticking." "Dipsticking" provides that the teacher ask a question to the group and the students gave either a thumbs up or thumbs down. This "dipsticking" method of evaluation helped the teacher determine the amount of learning and cooperation.

To determine the composition of the cooperative learning groups, the children's past performance on tests and quizzes was charted. Based on the charted scores the children were ranked according to achievement from highest to lowest. It was determined that there would be five cooperative learning groups within the classroom. There were three groups of four and two groups of five students.

When assigning the children to the coeducational learning groups, race, gender and achievement were accounted. When forming the group, a high achiever was chosen, a low achiever, and two average achievers. The heterogeneous achievement levels and racial balance was also accounted for in the "same-sex cooperative learning groups."

Once the children were placed into their groups, each member of the group was given a job assignment. After the jobs were assigned, cooperative learning group rules were established. The rules were taken from Grisham and were as follows: Stay with your group, Use indoor voices, Help each other, Share your thoughts, Finish the work, and Work things out. To reinforce the rules and to keep all children on task, an incentive program was introduced. If the student earned a star each day for the entire week, the student earned a reward of a piece of candy.

After the two experimental cycles were complete, the academic performance of males and females in the same-sex and coeducational cooperative learning groups was

assessed. For each cycle, the grades on the tests and quizzes were averaged together and charted.

Summary of Findings

A t-test for non-independent samples was utilized which determines whether there was a significant difference between the means for the achievement of the males and females in the "coeducational learning group" and in the "same-sex learning group." The t-test for nonindependent samples indicated a significance between the coeducational and same sex learning groups. The "coeducational learning group" mean for the males was 83% and 93% for the "same-sex cooperative learning group." The mean for the females in the "coeducational cooperative learning group" was 86% and 95% for the "same-sex cooperative learning group." Therefore, the hypothesis that the students academic performance while participating in the same-sex cooperative learning group will exceed their academic performance in the coeducational learning group was supported.

Conclusions

The results of the study support the hypothesis that the students academic performance while participating in the same-sex cooperative learning group will exceed their academic performance in the coeducational learning group. The necessity of forming same-sex cooperative learning groups within the cooperative learning classroom is crucial in order for all children to achieve successfully (Webb, 1984). Therefore, it can be concluded that same-sex cooperative learning has a positive effect on the academic achievement of students.

Implications and Recommendations

The results of the study did support the hypothesis that the students academic performance in the "same-sex cooperative learning group" would exceed the academic performance in the "coeducational cooperative learning group." The results also indicate that "same-sex" cooperative learning is effective in the classroom for both genders. Although the study took place in a first grade class, the findings of the study should be generalizable to most elementary classroom situations where both males and females are present.

This study utilized only one group of first grade students as a sample. To account for various learning styles more than one group of students should be used as the sample in following studies. The larger sample size allows for individual differences such as race and age to be correlated into the study.

The length of the treatment in a study is critical. In this study, the subjects were placed in each cooperative learning group for a period of three weeks. To fully assess the differences between each cooperative learning group, a longer period of time in each treatment group would have been favorable.

Although the self-esteem of the students was not introduced into the study, the females while working together were more apt to volunteer answers and participate in the daily classroom functions. The males, while participating in the "same-sex cooperative learning groups," were extremely vocal and confident about their work and participation. These anecdotal observations were made during the group work and during the "dipsticking" process. Therefore, further research is needed in the area of self-esteem and same-sex cooperative learning.

Cooperative learning can be an effective tool within the classroom for both males and females. It is imperative that educators be made aware of the benefits of same-sex cooperative learning groups within the elementary school classroom. In the same-sex

cooperative learning groups children form connections with members of the same gender while they work along side groups of the opposite gender. The students are observing cooperation and actively participating with one another to achieve a common goal. Same-sex cooperative learning has a positive effect on achievement and should be incorporated into the elementary school classroom; however, further research in the field of same-sex cooperative learning groups is needed to support the findings.

From the results of the study, it is apparent that a students academic achievement tends to be significantly higher when working with students of the same gender. The male students average while in the "coeducational cooperative learning groups" was an 83% and increased to a 93% while working in the "same-sex cooperative learning groups." The females "coeducational cooperative learning group" average was an 86% and increased to a 95% while working in the "same-sex cooperative learning groups."

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APPENDIX

APPENDIX

The most extensively researched of all cooperative learning methods, Student Teams-Achievement Divisions (STAD) developed by Robert E. Slavin (1990) has proven to be quite versatile and adaptable, having been used at virtually all grade levels in mathematics, science, social studies, and the language arts.

STAD is composed of five major components; class presentations, teams, quizzes, individual improvement scores, and team recognition. Students are first assigned to four or five member groups, consisting of high, medium and low ability students, boys and girls, and students of different racial and ethnic backgrounds. After the teacher has introduced new material through lecture, discussion, or any other medium, the team members then study worksheets or review sheets on the material. At some point groups are given answer sheets so it is clear to them that they are to learn concepts, not simply fill out worksheets. Team members are told that they are not done studying until they and their teammates are sure that they understand the material. Following team practice, students individually take quizzes on the materials they have been studying. The teams with the highest scores can be recognized with some sort of reward.

STAD is appropriate for teaching well defined objectives, such as mathematical computations and applications, language usage and mechanics, geography and math skills, and science concepts.

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